

PROCESS FOR DEPOSITING F-DOPED SILICA GLASS IN HIGH
ASPECT RATIO STRUCTURES

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ABSTRACT OF THE DISCLOSURE

10 A process for filling high aspect ratio gaps on
substrates uses conventional high density plasma
deposition processes to deposit fluorine-doped films,
with an efficient sputtering inert gas, such as Ar,
replaced or reduced with an inefficient sputtering
15 inert gas such as He and/or hydrogen. By reducing the
sputtering component, sidewall deposition from the
sputtered material is reduced. Consequently, gaps with
aspect ratios greater than 3.0:1 and spacings between
lines less than 0.13 microns can be filled with low
20 dielectric constant films without the formation of
voids and without damaging circuit elements.